Operating manual and assembly
Air / Water Heat Pump

GELBI D4.2

evenes®

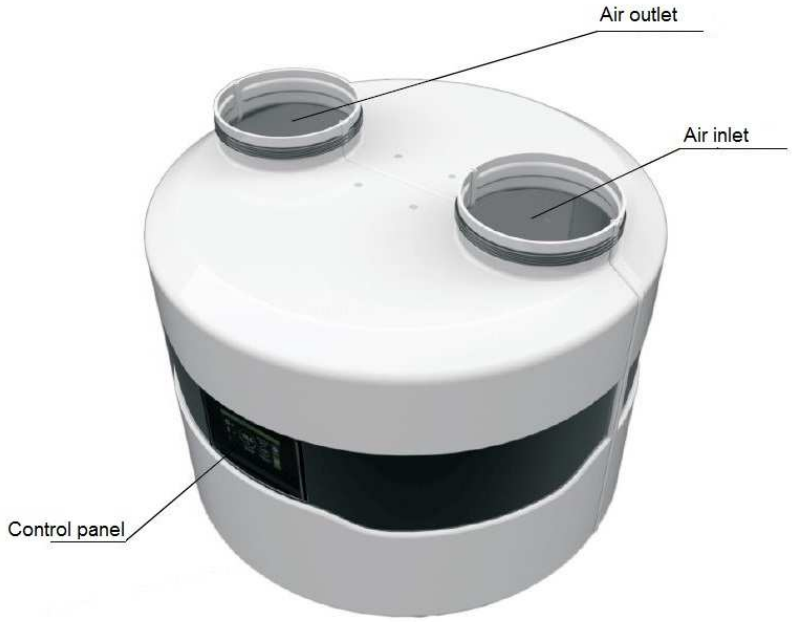
Version: 4_07_2020

1. Description of the Heat Pump 4
2. Construction of the Heat Pump 4
3. Installing of the Heat Pump 4
4. Description of controller functions 8
5. Main menu 9
6. Fitters menu 11
7. Service menu 15
8. Standby mode 19
9. Security and Alarms 20
10. Maintenance 22
11. SG Ready function 22
12. The procedure after the shelf life of the device 22
13. Electrical diagram 23
14. Hydraulic diagrams 25
15. Technical data 28
Start-up protocol of the heat pump GELBI D4.2 30
Start-up protocol of the heat pump GELBI D4.2 31

1. Description of the Heat Pump

Heat pump GELBI D4.2 is a device designed for preparation domestic hot water. It uses the rotary screw compressor optimised for high condensation temperatures, i.e. enabling heating to high temperature. The air flow is forced via the finned coil by modern, powerful and energy efficient fan. Water is heated in the SWEP plate exchanger made of stainless steel. Hot water circulation is forced by WILO circulating pump adapted also to work directly with tap water. The correct operation of the heat pump is supervised by a controller with an algorithm optimised for the design of the GELBI D4.2 heat pump. The housing is made of ABS plastic. All the above mentioned characteristics and components comprise the high quality and efficiency of the heat pump.

2. Construction of the Heat Pump



Power supply cord and tank and buffer sensor are located at the back of the device.

3. Installing of the Heat Pump

3.1 Precautions during installation of the device

Installation of the heat pump should be performed by a person with appropriate qualifications in the field of heating and cooling devices. The country-specific health and safety regulations must be observed during installation.

3.2 Installation recommendations

GELBI D4.2 heat pump should be installed in a room where the temperature does not drop below + 5°C. If the temperature may fall below +5°C, the water circuit between the heat pump and the storage tank must be emptied and the system has to be blown out well, e.g. with compressed air.

During the installation process heat pump should be levelled by adjusting height of the legs. Failure to comply with this recommendation may result in a defective work and eventually damage to the equipment.

Keep a distance from the barriers (ceiling walls, etc.) for trouble-free maintenance of the heat pump. In the bottom part of the heat pump housing there is a condensate drain connection to which the drain hose must be connected. It is recommended to drain the condensate into the sewage system and to use a siphon.

3.3 Connection of hydraulic circuit

The heat pump has a built-in automatic air vent that ensures venting of the condenser and the heating loop.
The pipeline between the heat pump and the storage tank must have an internal diameter of 20 mm.
The heat pump must be connected to the system via flexible hoses.
On the return pipe line install the strainer filter !!!
The pipelines should be insulated on the whole length!!!

NOTE !!!

- **The temperature difference between supply and return of heating circuit should be set 5-8K**

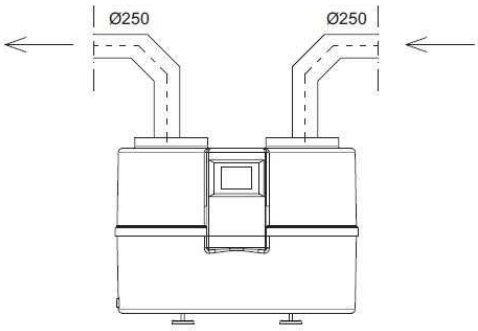
- **The heat pump should be connected to the power supply at all times. This applies when the DHW tank is heated by another heat source. The controller should be in standby mode. All protective functions are then carried out: condenser protection, antifreeze protection: DHW and buffer tank, pump antistop function.**

3.4 Connection of air ducts

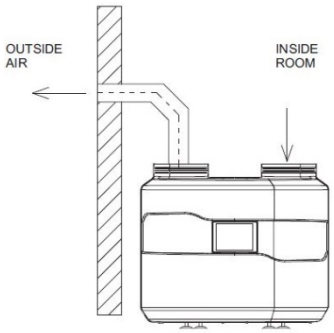
The heat pump has two connections for connecting the air ducts. The internal diameter of the air ducts should be min. 250 mm. **It is recommended to install insulated air ducts.** The maximum lengths of the air ducts: 8m
Note:
- The use of smaller diameter air ducts may result in a decrease in efficiency.
- When connecting air ducts outside the building, it is essential to provide protection against air circulation in winter (sub-zero temperatures) when the heat pump is out of use.

A coarse ISO filter (ISO Coarse) in accordance with the current ISO 16890 or a G2 class filter (compatible with the withdrawn standard EN 779: 2012) should be installed on the heat pump suction duct.

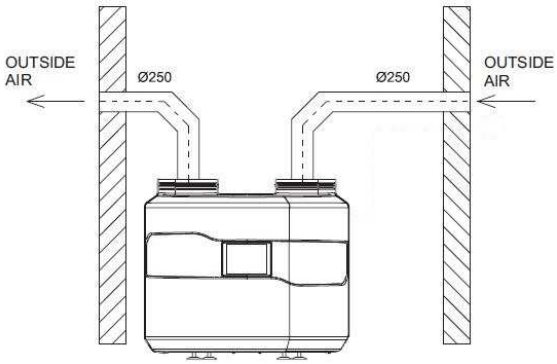
Air extracted from one room and exhausted to another room



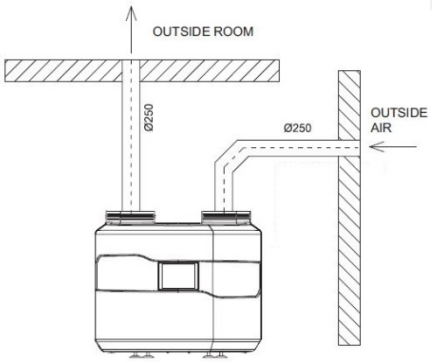
Air extracted from one room and exhausted through the wall to another room



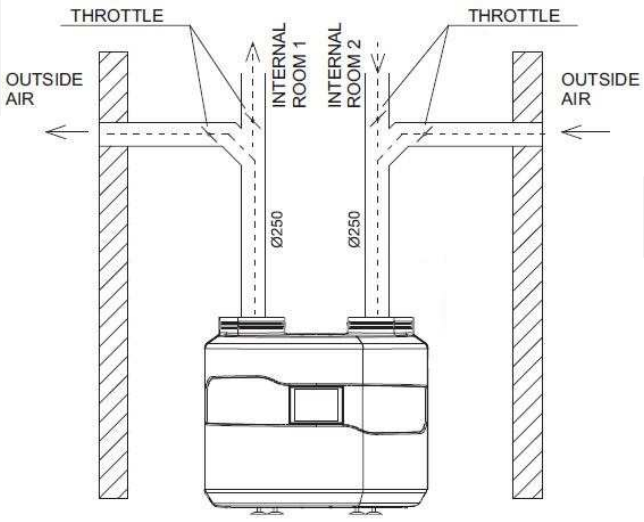
Air extracted from the outside through the wall and exhausted to the outside through the wall



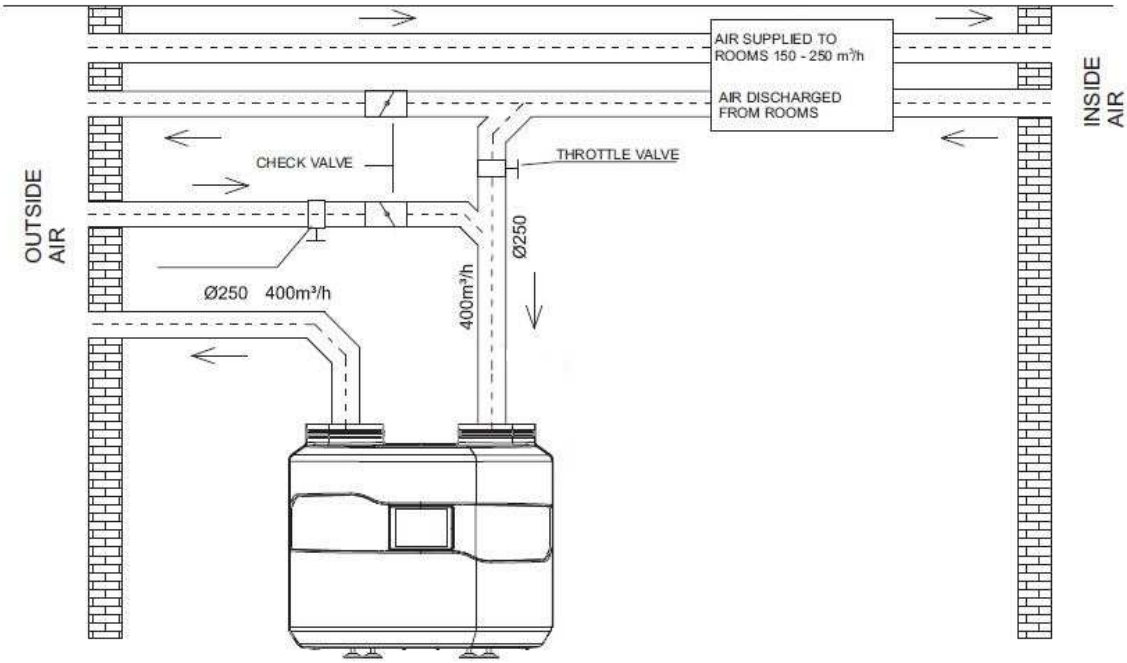
Air extracted from the outside through the wall and exhausted to the outside through the roof



Separation of inlet and exhaust air



Heat pump cooperating with recuperator



The heat pump and the recuperative unit operate independently of each other, therefore the ventilation ducts should also be separated. This means that when the recuperation is working and the heat pump is stopped, then the air flows easily to the ventilation outlet and not to the heat pump. This would reduce the efficiency of the recuperative air handling unit fan.

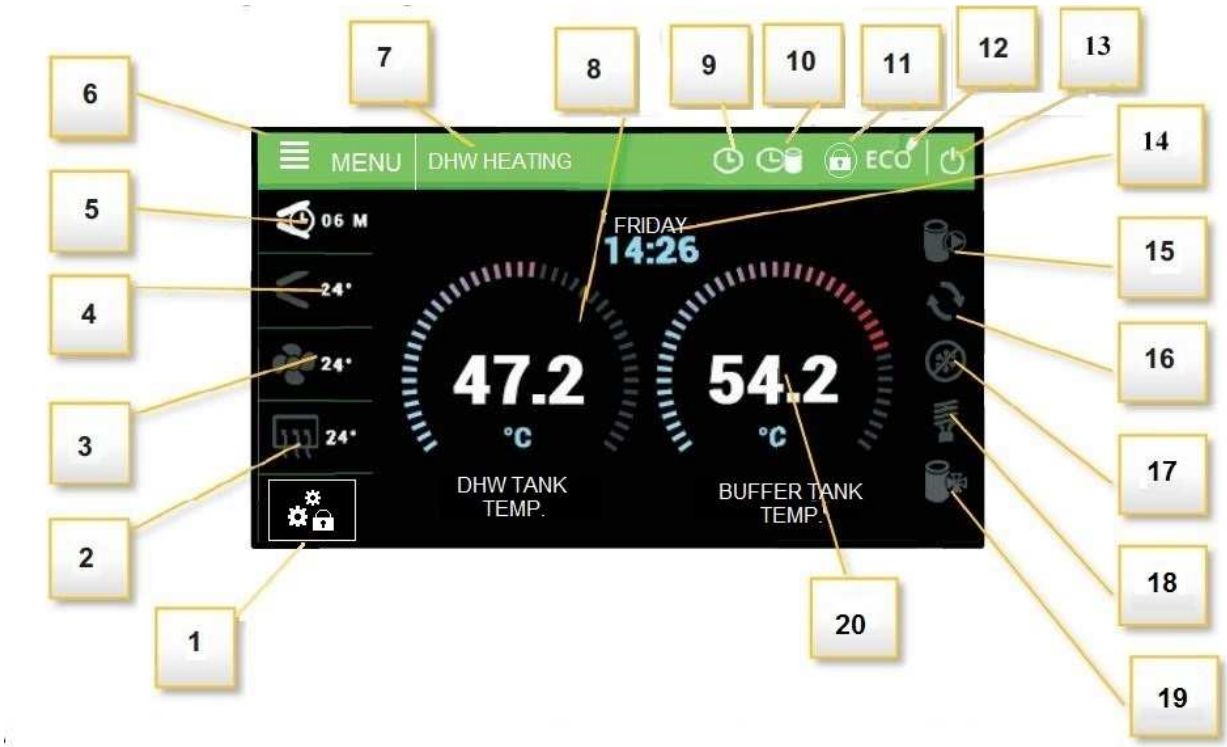
Note: In addition, the intake and ejection of air from the room in which the pump is installed is permitted. However, this may lead to a reduction in energy efficiency.

3.5 Electrical connection

The heat pump is powered by 1~230V/50 Hz. As a standard it has a plug with a cable of 1.5 m length.
Important: It is recommended that the electric supply circuit of the heat pump was equipped in the circuit breaker with characteristic "C" and residual current device with rated differential current transmission of 0.03A.
Note: All work related with the installation of these elements should be performed by personnel with the appropriate permissions and qualifications. As a standard there is a possibility of connecting electric heater up to 1.5 kW. If electric heater with more power is needed, replace the existing power supply cable.
The sensor cable can be extended up to 5m.
For its extension can be used e.g. cable type H03VVV-F 2x0.5mm^2 or with similar parameters.
If the heat pump controller does not work, first check the fuse on the heat pump supply circuit and then the fuse placed on the control board inside the heat pump. For this purpose, the heat pump housing must be partially removed.

4. Description of controller functions

Description of icons displayed in the controller in the operating mode:



1- Operating mode of the additional contact:

Active SG function

End of heating by thermostat

Heating option with active thermostat

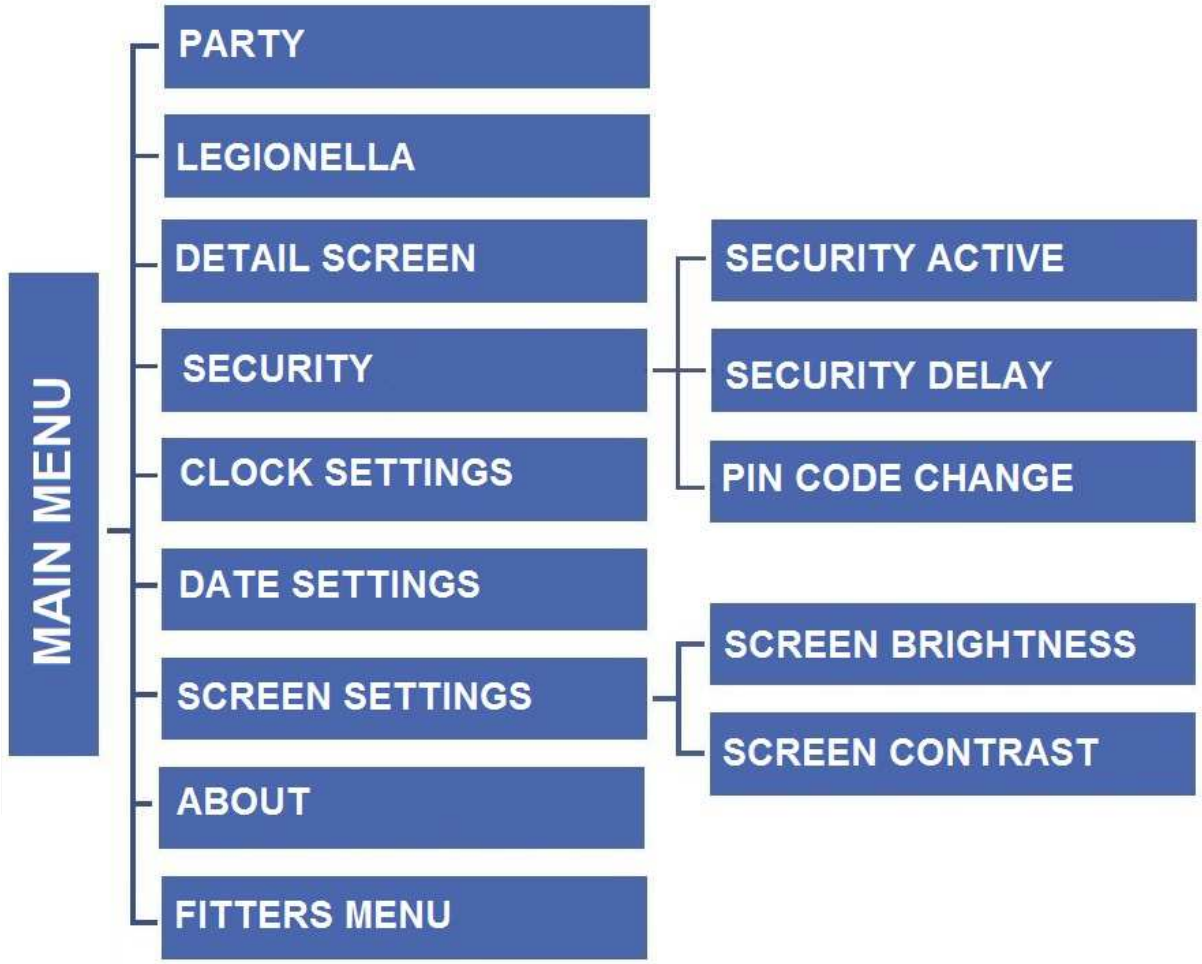
2- Evaporator temperature
3- Outdoor temperature and fan operation indication
4- Hot gas control temperature and indication of compressor operation
5- Time to restart the compressor
6- Enter to the controller menu
7- Heat pump mode, alarm notifications
8- Current DHW tank temperature
9- Active weekly schedule of the DHW
10- Active weekly schedule of buffer heating
11- Active controller lock
12- ECO / ECO PLUS mode
13- STANDBY mode icon
14- Day of the week and current time
15- Operating status of the tank pump
16- Operating status of the circulation pump
17- Operating mode status - "defrost"
18- Operating status of the heater
19- Operating status of the buffer pump
20 - Current DHW tank temperature (for operation with heat buffer, the temperature measured in the buffer tank)

4.1 Control of the work of executive equipment

The controller controls the operation of the compressor, fan, integrated circulation pump, circulation pump and electric heater. The compressor is activated with a delay in relation to the circulation

pump and fan – **delay compressor parameter**. The electric heater operates above ECO-PLUS temperature, in Party mode and in case of failure.
Attention: The heater is not installed in the device. It is an optional external component, which can be controlled by the heat pump controller.

5. Main menu



5.1 Party

When Party mode is activated, the heat pump tank reaches the set temperature as soon as possible. In this mode, all available heat sources connected to the controller operate simultaneously.

5.2 Legionella

When this function is activated, the boiler heats up to 70°C (factory setting) and maintains this temperature for a specified period of time, then returns to normal operation. Any changes to the settings for this function are only possible in the service menu.

5.3 Detail screen

The detailed screen shows the temperatures measured by the sensors and the status of the pressure switches.

5.4 Security

5.4.1 Security active

Driver blocks access to functions in the controller menu after a defined period of inactivity.
Prevents setting changes by unauthorized persons or children.

5.4.2 Security delay

If the option *Security active* is selected, the controller blocks access to the functions of controller menu after a specified period of inactivity (setting *security delay*). In order to unblock the controller it is necessary to enter a four-digit code, which can be defined in the option *PIN code change*.

5.4.3 PIN code change

The user sets his own PIN code to the controller.

5.5 Clock setting

Setting the current time in the controller.

5.6 Date setting

Setting the current date in the controller.

5.7 Screen settings

5.7.1 Screen brightness

Screen brightness settings.

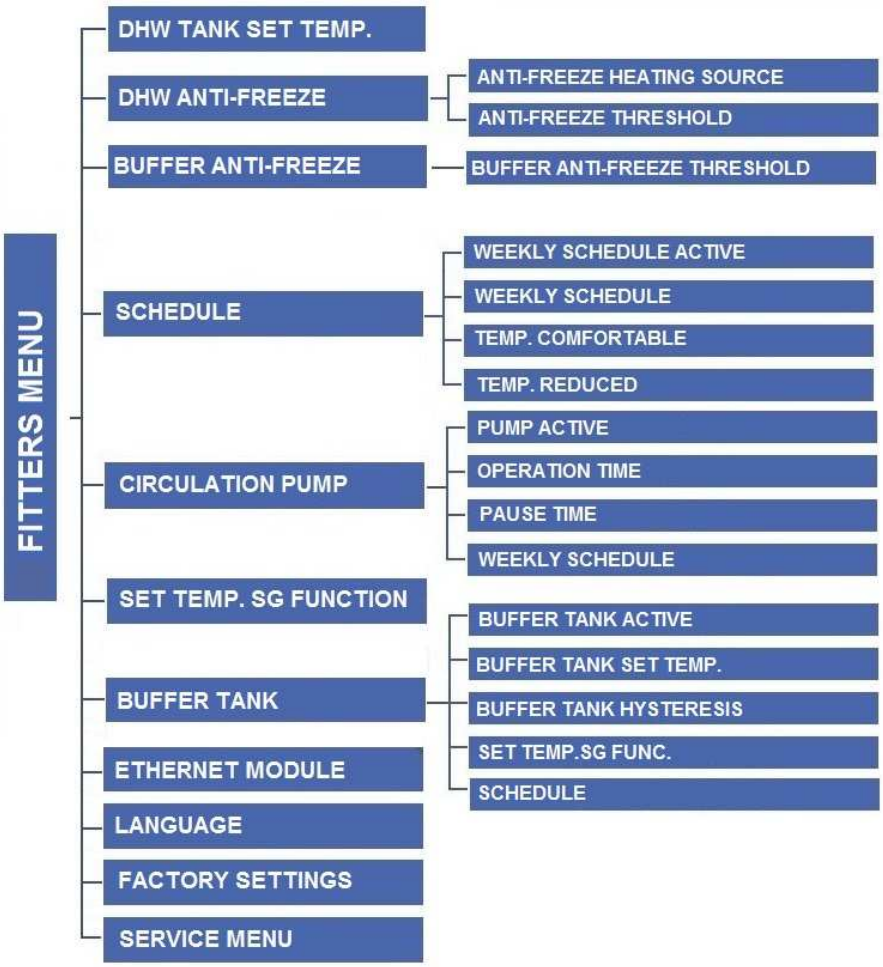
5.7.2 Screen saver brightness

Set the brightness level of the screen saver.

5.8 About

The function allows the user to preview the controller information - name of the manufacturer, software number, and service telephone number.

6. Fitters menu



6.1 DHW tank set. temperature

This function is used to set the tank set-point temperature. The fan, compressor and pump run until the set tank temperature is reached.

6.2 DHW anti-freeze

Tank anti-freeze function. It is also active in "standby" mode.

6.2.1 Anti-freeze heating source

The user selects the device (heater, heat pump) that will start to protect the tank from freezing.

Note: Please note that the heat pump can only operate at temperatures above 5°C.

The heater is optional. It can be connected to the output of the control board according to the electrical scheme in the manual.

6.2.2 Anti-freeze threshold

When the temperature drops below a certain temperature threshold (factory set limit is 5°C) the heat pump or the electric heater starts permanently. It is switched off when the tank temperature is 3°C higher than the set parameter.

6.3 Buffer anti-freeze

The parameter is available only for the enabled buffer function: **6.7.1 Buffer tank active** and connected buffer sensor.

6.3. 1 Anti-freeze threshold

When the temperature drops below a certain temperature threshold (factory set limit is 5°C) the heat pump or the electric heater starts permanently. It is switched off when the tank temperature is 3°C higher than the set parameter.

6.4 Schedule

When the weekly control function is activated, the heat pump will operate at the set times in comfort mode and the rest in reduced mode. The set-point temperatures in modes are editable.

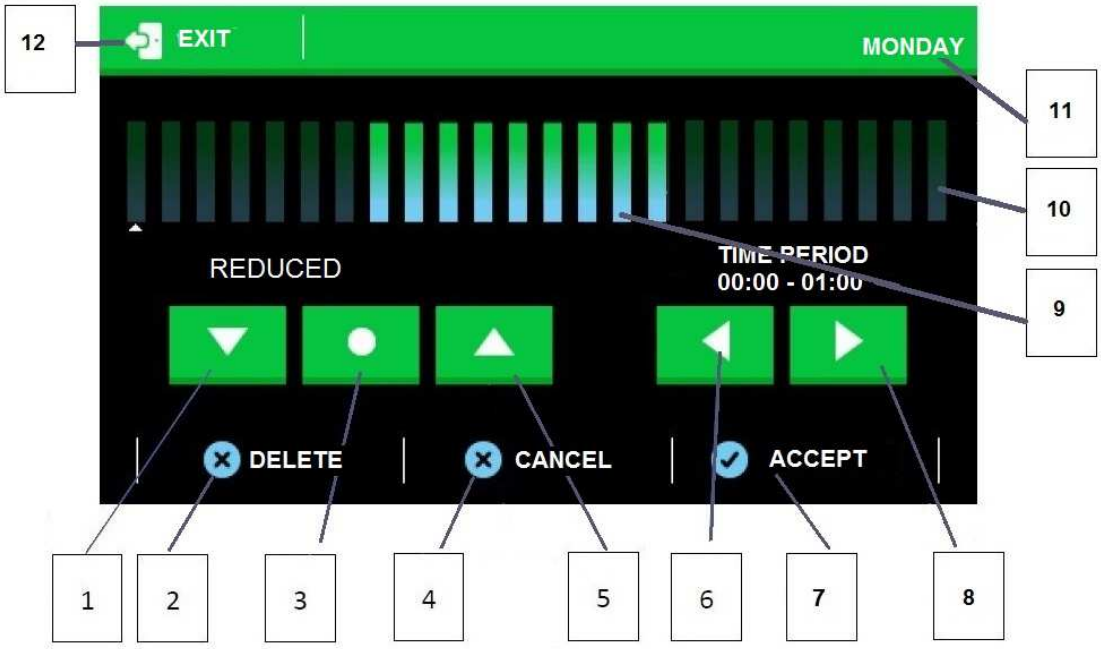
6.4.1 Weekly schedule active

This option enables / disables weekly control of the heat pump operation

Note: Weekly control will work correctly after setting the current time and date.

6.4.2 Weekly schedule

The first step in editing the weekly schedule is to select the day for which you want to specify the settings.



1- Set the Reduced temperature
2- Delete the current program
3- Selection of copying (allows you to copy the current mode to other hours of operation)
4- Cancel button - exit to day selection screen
5- Set the Comfortable temperature
6- Icon for changing the timer setting (back)
7- Confirm button - confirmation of the set program
8- Icon for changing the timer setting (forward)
9- Comfort mode active
10- Reduced mode active
11- Day
12- Return to home screen

After finishing the program settings, press the "Confirm" button, then you can copy the program to another day of the week. Press the "cancel" button, if you want to delete the whole program from the set day.

6.4.3 Temp. comfortable

The user sets the comfort temperature that the controller will maintain when it is active in the weekly program.

6.4.4 Temp. reduced

The user sets the reduced temperature that the controller will maintain when it is active in the weekly program.

6.5 Circulation pump

This function is used to activate the connected circulation pump and to define individual settings. The circulation pump operates in intermittent mode according to the parameters of operating time, break time and weekly schedule.

6.5.1 Pump active

Activation of the circulation pump.

6.5.2 Operation time

Operating time of the circulation pump.

6.5.3 Pause time

Circulation pump standstill time.

6.5.4 Weekly schedule

The user sets the hours and days of the week on which the circulation pump should operate. The weekly schedule setting is similar to the weekly program setting for the DHW tank.

6.6 Set temp. SG function

The user sets the tank temperature in the SG function (work with a photovoltaic system).
In certain conditions (opening of the SG contact) the controller will activate the Comfort mode in the SG function regardless of the weekly program.

Note: For proper operation of the SG function, the activation of the weekly schedule is required.

6.7 Buffer tank

Control parameters for heating the buffer tank are available in the section. The buffer tank has a lower priority over the DHW cylinder.

6.7.1 Buffer tank active

Selecting this option activates the buffer tank heating function. Connection of a buffer sensor is required.

6.7.2 Buffer tank set temp.

Setting the target temperature of the buffer tank.

6.7.3 Buffer tank hysteresis

Setting the hysteresis of the buffer tank heating.
The tank is charged until the desired temperature is reached. Recharging is possible when the buffer temperature is equal to or lower than the preset temperature by the value of the set parameter.

6.7.4 Set tem SG function

In this section, the user sets the target temperature of the tank when the heat pump uses the energy generated by the photovoltaic system.

6.7.5 Schedule

In the schedule section of the controller there are the following parameters:
Weekly schedule active- activation of the weekly programme for working with the buffer.
Weekly schedule- the controller allows to set periods of time for each day of the week during which the comfortable temperature or reduced temperature in the buffer tank will be maintained. The weekly program is set in the same way as the weekly DHW schedule. (6.4.2 Weekly schedule).
Temp. comfortable- setting the comfort temperature in the buffer tank.

Temp. reduced- setting the reduced temperature in the buffer tank.

6.8 Ethernet module

NOTE

This type of control is possible exclusively after purchasing and connecting to the driver the additional ST-505 module which isn't attached to the standard driver. An internet module is a device allowing remote control of the heat pump through the Internet or the local network. The user controls the operating parameters of all devices on the screen of the personal computer (PC). Working parameters of every device is presented in the form of the animation. For more information on connection and configuration, refer to the ST-505 module manual.

6.8.1 Module on

Turning on the Ethernet module ST-505. After activating the parameter, further parameters related to the module connection will appear in the controller.

6.8.2 Registration

The registration process of the module for the Internet platform is available on htttps://emodul.pl. After completion of registration in the controller will display the code, which should be entered in the registration field (Registration code from the controller).

6.8.3 DHCP

Active DHCP option will download network settings to which ST-505 module is connected, including: IP address, network mask, gateway address, DNS address.

6.8.4 IP Address

Manually assign an IP address.

6.8.5 Network mask

Manually assign a network mask.

6.8.6 Gateway address

Manually assign a network gateway address.

6.8.7 DNS Adress

Manually assign a DNS address.

6.8.8 Module version

An option that displays information related to the network settings and the software version of the Ethernet module.

6.9 Language

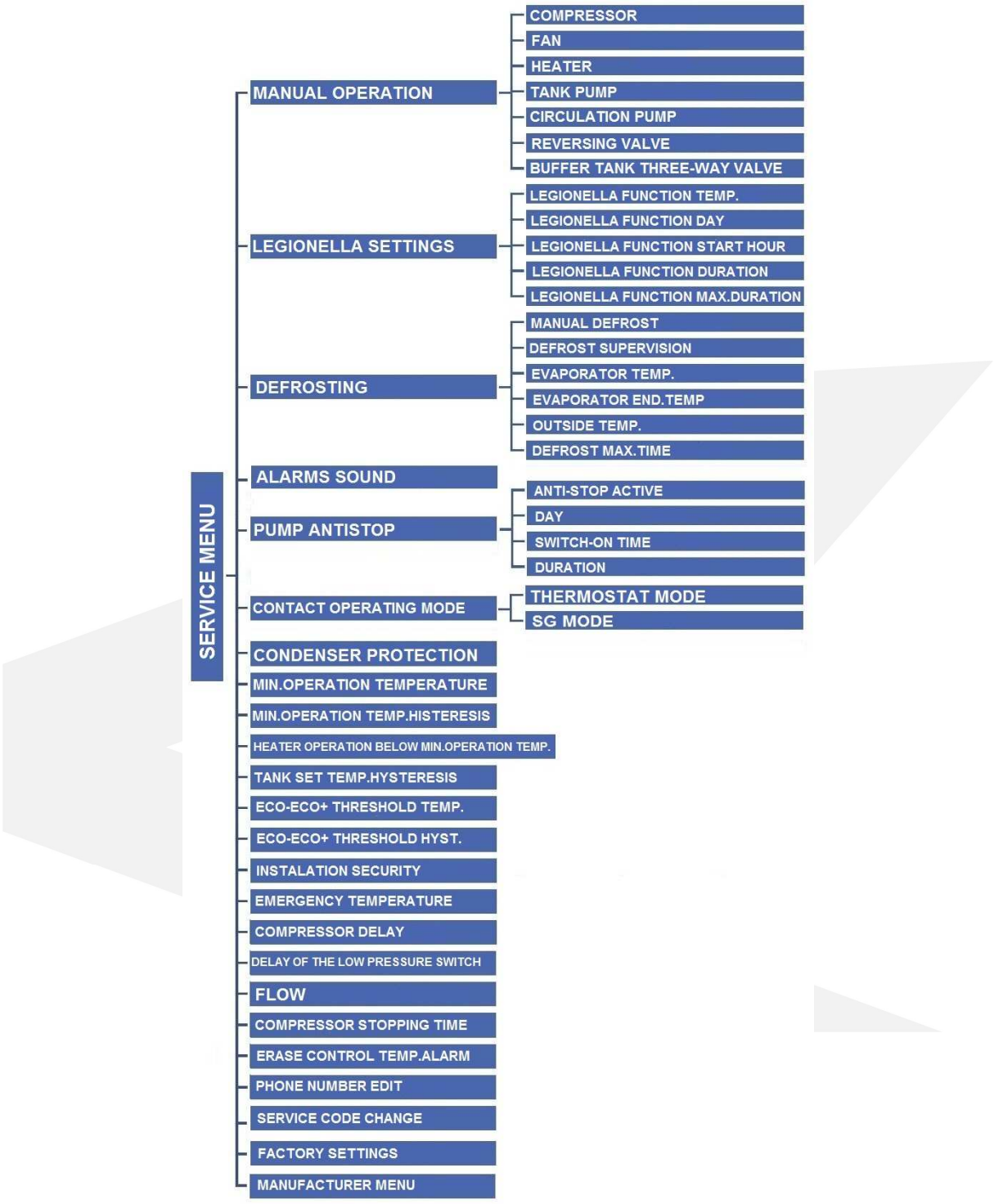
This function allows you to set the language version of the controller.

6.10 Factory settings

The controller is preconfigured for operation. However, it should be adjusted to the user needs. You can return to the factory settings at any time. If you switch on the factory settings, you will lose all your own settings for the heat pump (saved in the user menu) to the settings saved by the controller manufacturer. From this point user can reset your own service parameters of the heat pump.

7. Service menu

To open the service menu of the controller, enter a four-digit access code.



7.1 Manual operation

The function allows to enable individual devices regardless to other to verify its operation. Press the appropriate icon to switch on each device.

7.2 LEGIONELLA settings

LEGIONELLA function is used to disinfect the tank. In the service menu the user can configure individual parameters of this function.

7.2.1 LEGIONELLA function temp.

The function allows to define the set-point temperature of disinfection.

7.2.2 LEGIONELLA function day

Select the day of the week on which the Legionella function will be executed.

7.2.3 LEGIONELLA function start hours

Set the start time for Legionella function.

7.2.4 LEGIONELLA function duration

This function allows setting the duration of the disinfection (in minutes) in which the set-point temperature of disinfection stays at a constant level.

7.2.5 LEGIONELLA function max. duration

It is the maximum total disinfection time (LEGIONELLA function) from the moment of switching on (regardless of the temperature during switching on). If the tank does not reach the preset disinfection temperature or does not maintain the preset temperature for the duration of the LEGIONELLA function, the controller will return to the basic operation mode after the time set in the **LEGIONELLA function max. duration**.

7.3 Defrosting

The defrosting process involves switching on the compressor, circulating pump and shifting the defrost valve. The defrost mode continues until the evaporator reaches the desired temperature.

7.3.1 Manual defrost

Activation of the manual defrost function. This function should be used in case of emergency (strong evaporator frosting). The controller will allow the defrost function to be activated when the evaporator and external temperatures are lower than the values set in the defrost parameters.

7.3.2 Defrost supervision

Activation of the low pressure control over the defrost.

7.3.3 Evaporator temp

The controller will start defrosting automatically when the evaporator temperature is lower than the set value.

7.3.4 Evaporator end temp.

The controller will end defrosting when the temperature on the evaporator reaches the set value.

7.3.5 Outside temp.

The controller will start defrosting when the external temperature is lower than the set value.

7.3.6 Defrost max. time

Defrosting is limited in time. If the evaporator cannot be effectively defrosted after this time, the heat pump goes through a 10-minute preheating cycle, followed by a defrosting process again. After 3 unsuccessful defrost attempts, a defrost error message is displayed and the heat pump is blocked. All protection functions remain active. The heat pump resets when the power is disconnected.

7.4 Alarms sound

Option to enable/disable the alarm signal.

7.5 Pump anti-stop

Function to prevent " stagnation " of the built-in circulation pump. The function also works in "standby" mode. The controller will start the circulation pump according to the following parameters.

7.5.1 Anti-stop active

Activating anti-stop mode. This function should always be active

7.5.2 Day

Select the day of the week on which the circulation pump starts in anti-stop mode.

7.5.3 Switch-on time

Setting the pump switch-on time in antistop mode.

7.5.4 Duration

Circulation pump activation time in antistop mode.

7.6 Contact operation mod

The function allows to program the potential-free input as an input of the SG mode or as a "thermostat".

- **SG mode -** shorting the contact will cause that the controller will start the heating function to the temperature set in parameter **6.5 Setpoint temperature of the SG function.**
- **Thermostat mode** - the heat pump will be switched off when the contact is open. The heat pump is switched on when the contact is shorted.
  Do not connect any voltage signal. This may cause damage to the controller!

7.7 Condenser protection

The condenser is protected by switching on the circulation pump when the outside temperature falls below 5°C. The circulation pump operates according to the parameters of operating time / break time. The function should always be active, so while the tank is being heated by another heat source, standby mode should be activated.

7.7.1 Operation time

Operating time of the circulating pump in the condenser protection function.

7.7.2 Pause time

Breakdown time of the circulating pump in the condenser protection function.

7.8 Min. operation temperature

This function is used to set the minimum ambient temperature (threshold) below which the heat pump is not operating.

7.9 Min. operation temp. hysteresis

Hysteresis of minimum operating temperature introduces a tolerance for the activation threshold temperature preventing unwanted oscillations at activation low temperature fluctuations. This is the difference between the heat pump activation temperature and the temperature of its deactivation (after the temperature drop).

Example: when the minimum operating temperature is set to 5°C and the hysteresis is set at 2°C, the heat pump activates at 5°C, but when the temperature drops to 3°C the unit is deactivated.

7.10 Heater operation below min. operation temp.

Activates the operation of the heater if the outside temperature is lower than the value set in parameter *7.8 Minimum operating temperature.*

7.11 Tank set. temp hysteresis

This option is used to set the tank temperature hysteresis. This is the difference between the set point temperature (desired on a DHW tank - when the heat pump turns off) and a temperature of the heat pump activation.

7.12 ECO-ECO+ threshold temp.

The ECO - ECO PLUS threshold is a tank temperature at which the unit is turned off and further tank post heating starts to be carried out using the electric heater or/and an additional heat source.

7.13 ECO-ECO+ threshold hyst.

This option is used to set the temperature hysteresis for the ECO - ECO PLUS threshold (disconnection of the unit and activation of an additional heat source), in order to prevent unnecessary oscillations. This is the difference between the temperature of deactivation of the unit and the temperature of the compressor reactivation (after the temperature drop below the ECO - ECO PLUS threshold).

7.14 Installation security

The operation of the installation protection depends on the pressure switch (the pressure sensor). If this function is activated, the pressure switch will send the signal about too high or too low pressure therefore, switching off pump and triggering the alarm.

7.15 Emergency temperature

The emergency temperature is a parameter protecting the unit and the compressor from overheating. If the temperature of the control sensor dangerously increase (up to an emergency temperature) 3 times within an hour the compressor will shut off permanently. In this case, the device can be restarted after the control temperature alarm has been cleared. The controller will emergencyally turn on the heater output in order to heat the tank.

7.16 Compressor delay

After starting the heat pump, the fan and the pump are activated first, and then after a few seconds, the compressor. This setting adjusts the time delay of the compressor. When the pump is about to switch off (e.g.: the ECO - ECO PLUS threshold temperature is to be reached), the compressor is deactivated and after a set time delay, the fan and the pump are also deactivated.

7.17 Delay of the low pressure switch

The time that determines the delay in the activation of the low-pressure switch. After four consecutive low-pressure alarms, the heat pump is blocked and an error message appears: low pressure switch error.

7.18 Compressor stopping time

This parameter prevents too frequent switching on of the compressor at short intervals.

7.19 Flow rate

The data set in the parameter "flow" is for information purposes only.

7.20 Erase control temp. alarm

This parameter is used for information displayed in driver statistics. The statistics function is available for controllers with energy counting function.

7.21 Phone number edit

This parameter is used to enter the service number. This number is displayed when the heat pump is switched on or in the user menu *5.8 Program information.*

7.22 Service code change

This parameter is used to change the service password.

7.23 Factory settings

The parameter is used to restore factory settings in the controller.

7.24 Manufacturer menu

Menu only accessible to the heat pump manufacturer.

8. Standby mode

Switch the heat pump into standby mode while it is not heating the tank. In standby mode, the controller performs condenser protection, circulation pump anti-stops and antifreeze protection of the DHW tank and buffer tank. Therefore, the heat pump should not be switched off from the power supply when another heat source is used to heat the domestic hot water tank. In standby mode, the measured DHW and buffer temperatures are displayed (active buffer pump control). Additionally, in standby mode, the controller controls the domestic hot water circulation pump according to the set operating schedule.

9. Security and Alarms

To ensure maximum safe and trouble-free operation, the heat pump is protected by automatic reset pressure switches installed in the refrigeration circuit on the low and high pressure sides. The pressure switches are connected to the controller. If any of the pressure switches are triggered, the heat pump operation will be stopped and an acoustic signal will sound. Additionally, the compressor is protected by a hot gas sensor (control sensor).

In the period of time when the tank is heated by another heat source, it is necessary to activate the STANDBY MODE in the controller - functions protecting against freezing of the condenser, DHW tank and buffer tank as well as the function protecting against stagnation of the circulation pump (pump anti-stop) are performed.

Description of the problem	Possible cause	Solution
Switching off the heat pump by releasing the pressure switch high pressure - notification: **INSTALLATION FAILURE/ PRESOSTAT HP**	- Lack of or insufficient water flow between the heat pump and the storage tank - Circulation pump defective or pump impeller blocked - Too high preset tank temperature - High-pressure switch defective	- Clean the bevel filter on the heat pump heating circuit. - Vent the heat pump circulation pump by activating and deactivating the circulation pump several times in manual operation or by removing the controller and housing parts, and venting the circulation pump by unscrewing a bolt in the body of the circulation pump. - Replace the circulation pump. - Reduce the preset tank temperature - Check high-pressure switch circuit (normally closed) - Replace the high-pressure switch. - Switch off and on the device.
Switching off the heat pump due to a low pressure switch triggered notification: **INSTALLATION FAILURE/ PRESOSTAT LP**	- Polluted evaporator - Low temperature of the suction air - Frosted evaporator - Loss of refrigerant - Defective low pressure switch	- Clean the evaporator - Provide air at a higher temperature - Check defrost settings - Turn on the manual evaporator defrost - Check low pressure switch circuit (normally closed) - Check the contact connection in the terminal block - Replace the low pressure switch. - Switch off and on the device.
Maximum control	- Too high set temperature	- Lower the set temperature

temperature exceeded. notification: **control temperature too high** and **AGGREGATE FALIURE**	- Too high temperature of the suction air - Polluted evaporator - Dirty filter in the intake air duct	- Provide air at a lower temperature - Clean the evaporator -Clean or replace the suction air filter. -Unlock the controller by resetting the control temperature alarm (service menu).
The heat pump does not reheat to the preset cylinder temperature	- Too large capacity of the tank - Excessive water flow between the heat pump and the storage tank - ECO-ECO + temperature set below the tank setpoint	- Control of the flow between the heat pump and the storage tank to determine the temperature difference between supply and return within a range of 5-8 K -Adjustment of temperature setting ECO-ECO PLUS -No heater or additional heat source connected
Temperatures measured by sensors are not displayed on the controller	- Sensor damaged - Loose cubes in the driver	- Removing the controller and checking connections - Replacing the sensor
Long cylinder heating time	- Too large capacity of the tank - Excessive water flow between the heat pump and the storage tank - Too small diameter of air duct - Low outside temperature - Polluted filter in the suction air duct	- Control of the flow between the heat pump and the storage tank to determine the temperature difference between supply and return within a range of 5-8 K - Use channels in accordance with the instructions in the operating manual. -Actuate additional (main) heat source to heat up the domestic hot water. -Clean or replace the suction air filter.
Water leakage	-Incorrectly leveled device -Obstruction of a duct in which condensate is discharged -Incorrect installation of condensate line	-Level the device -Check the permeability of the condensate evaporation duct -Check the condensate duct layout and that the duct is not bent.

10. Maintenance

Before and during the heating season check the technical condition of the controller wiring. Check also the controller mounting, clean the dust and other pollutants. User of device is requested to make service activities least once every year, which include for example:

- cleaning of evaporator
- cleaning of casing and the base of heat pump
- cleaning of the filter located in hydraulic instalation
- checking of electric connection

Attention: Before starting any service activities heat pump should be disconnected from electric grid!

11. SG Ready function

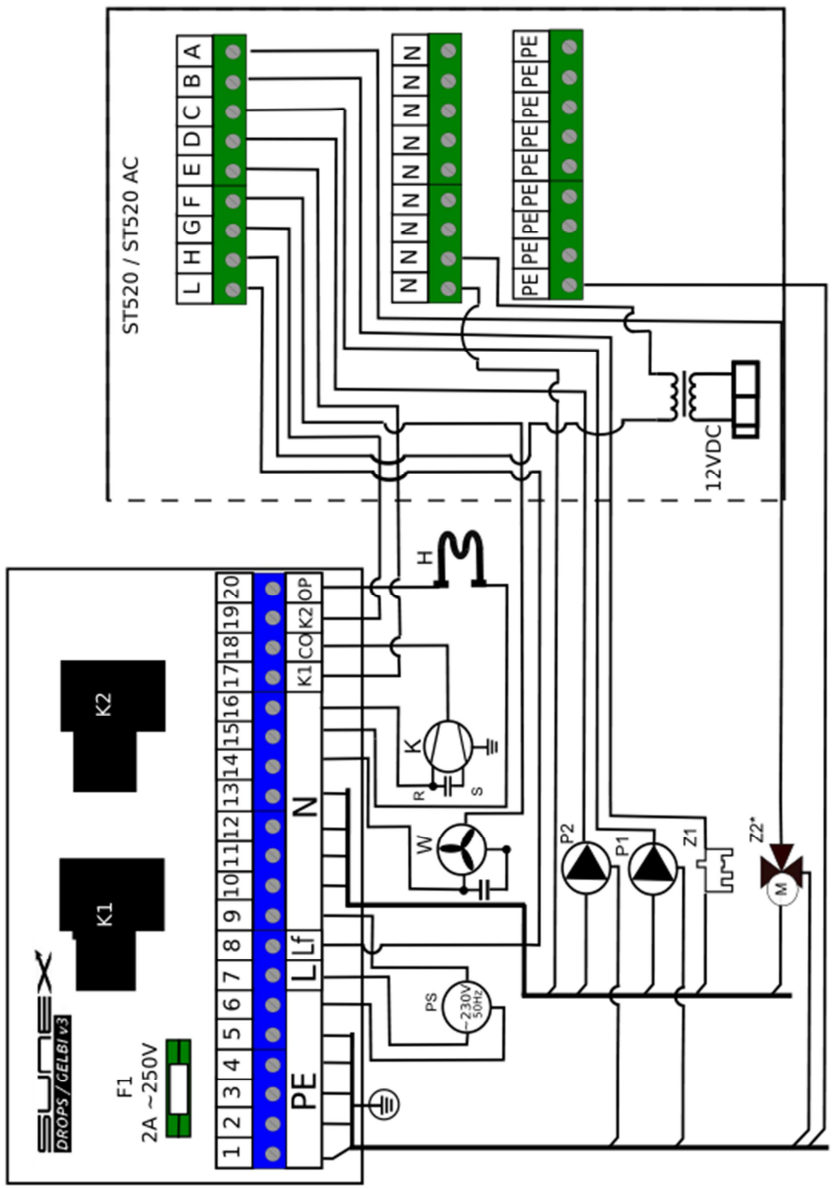
The GELBI D4.2 heat pump is designed to work with photovoltaic panels and energy tariffs. The controller has an additional **potential-free** NO contact. After triggering the contact, the heat pump is started and the domestic hot water tank is charged to the temperature set in the SG function. The SG function is only active in the controller when the weekly program is selected.

12. The procedure after the shelf life of the device

At the end of useful life of the device, you should contact a person with the appropriate permissions in the field of recovery and disposal/utilization of controlled substances. After emptying the device from the refrigerant the device can be given to disposal/utilization and / or individual components can be recycled.

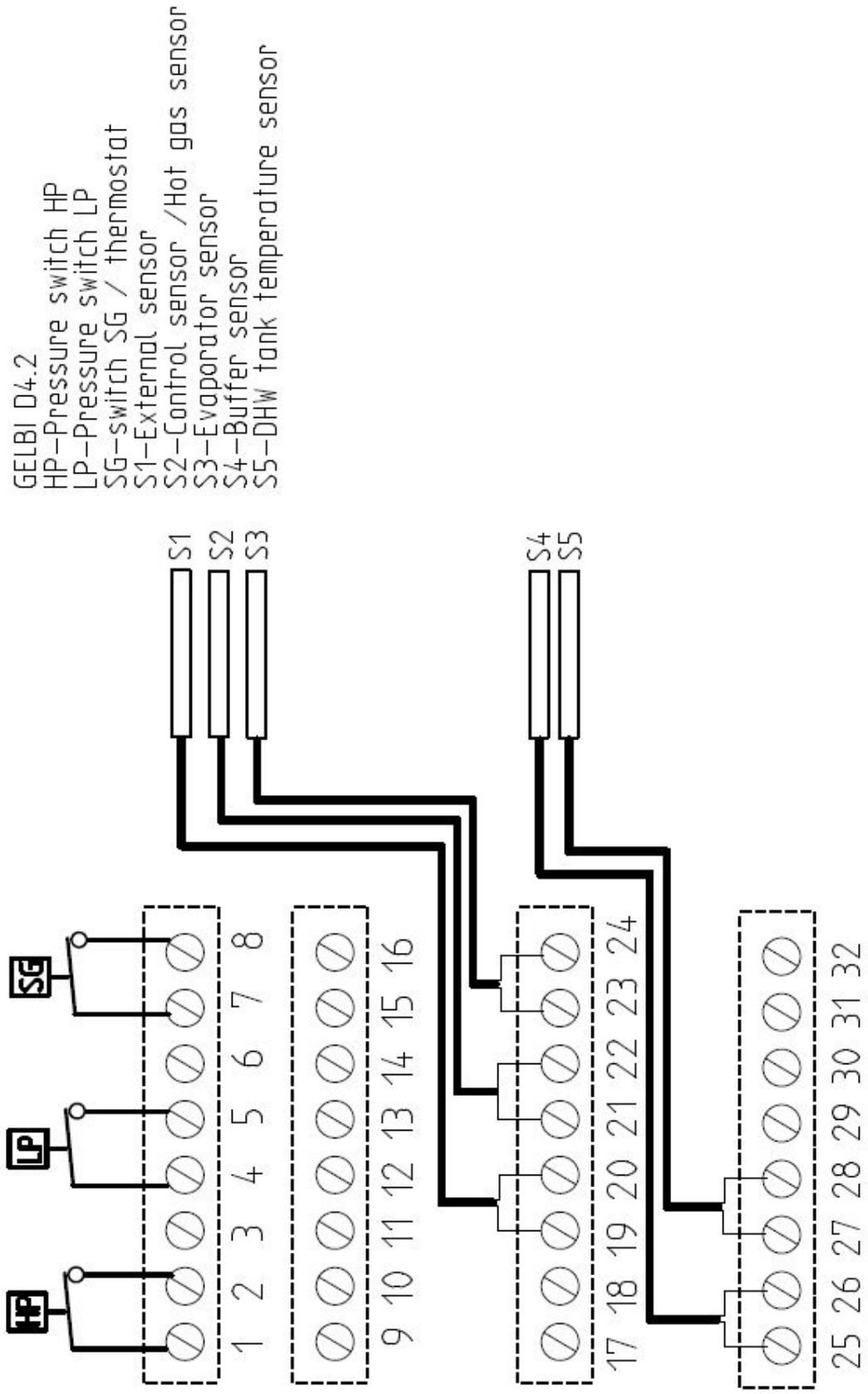
13. Electrical diagram

13.1 Connection of devices to the controller



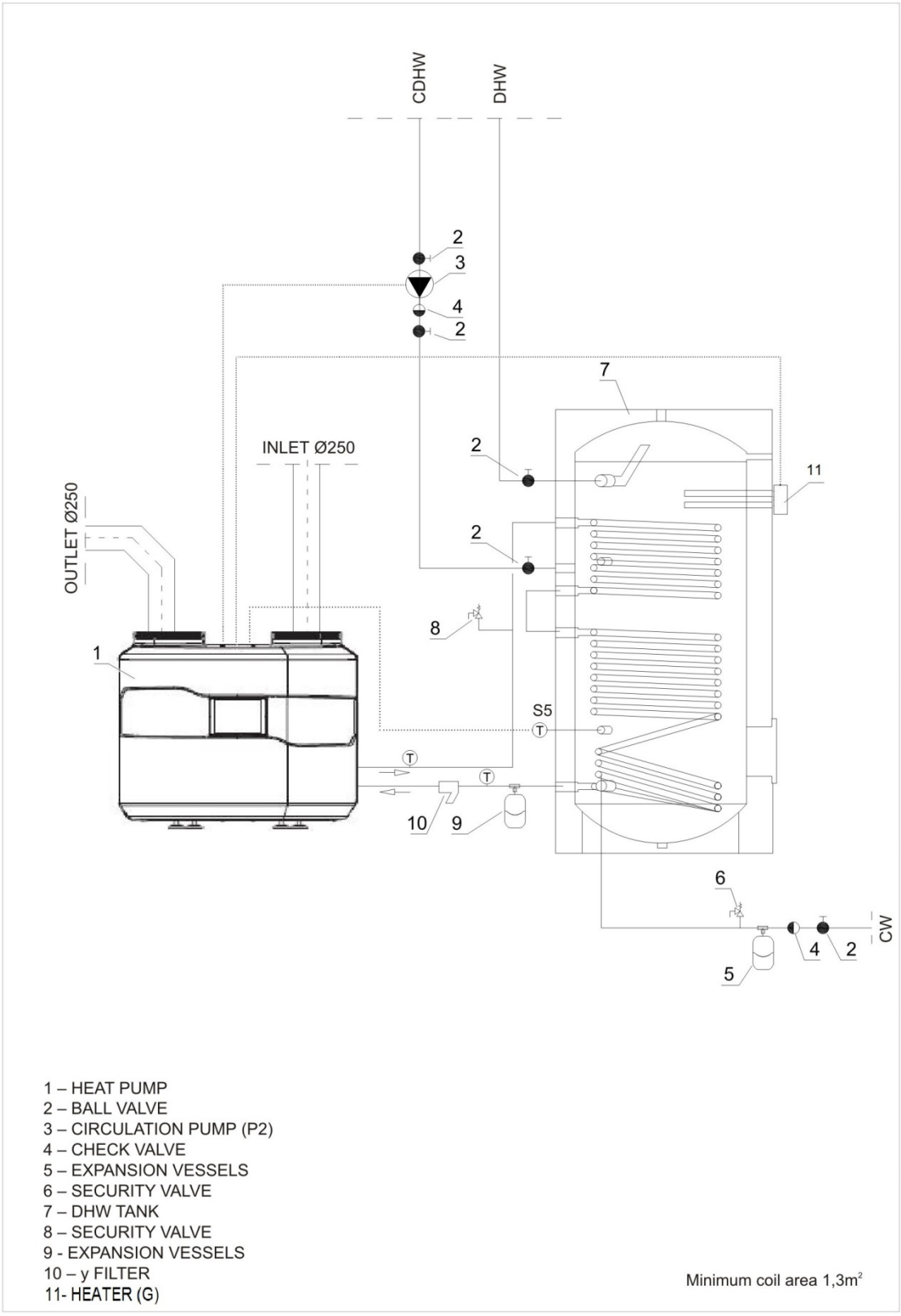
PS – Power supply ~230V; W- Fan; K- compressor; H- heater; P1- tank pump; P2- D.H.W. circulation pump, Z1- reversing valve, Z2*- Buffer switch valve (only available for Drops D4.2/Gelbi D4.2 pump model)

13.2. Connection of sensors

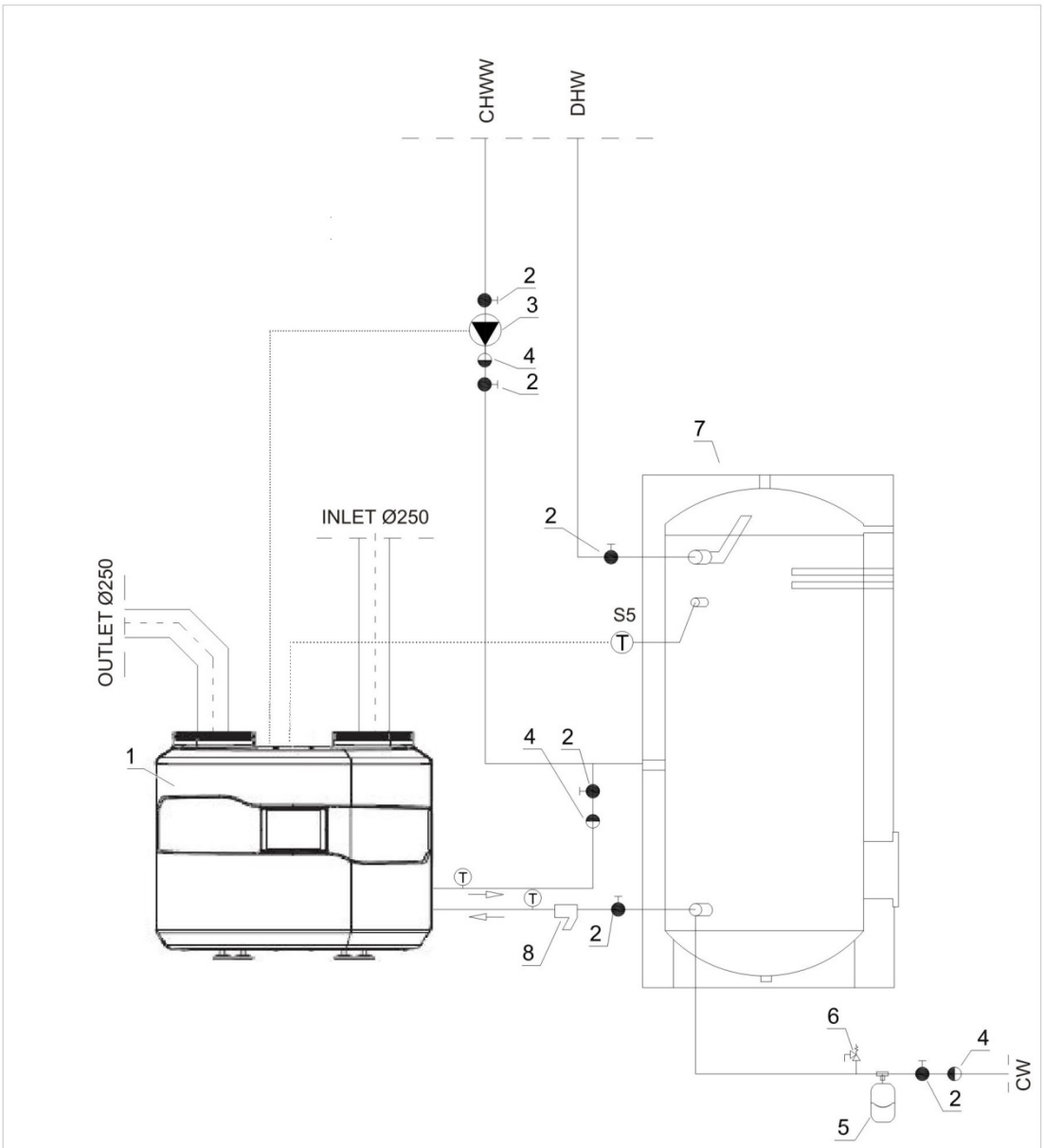


14. Hydraulic diagrams

14.1 Diagram no 1

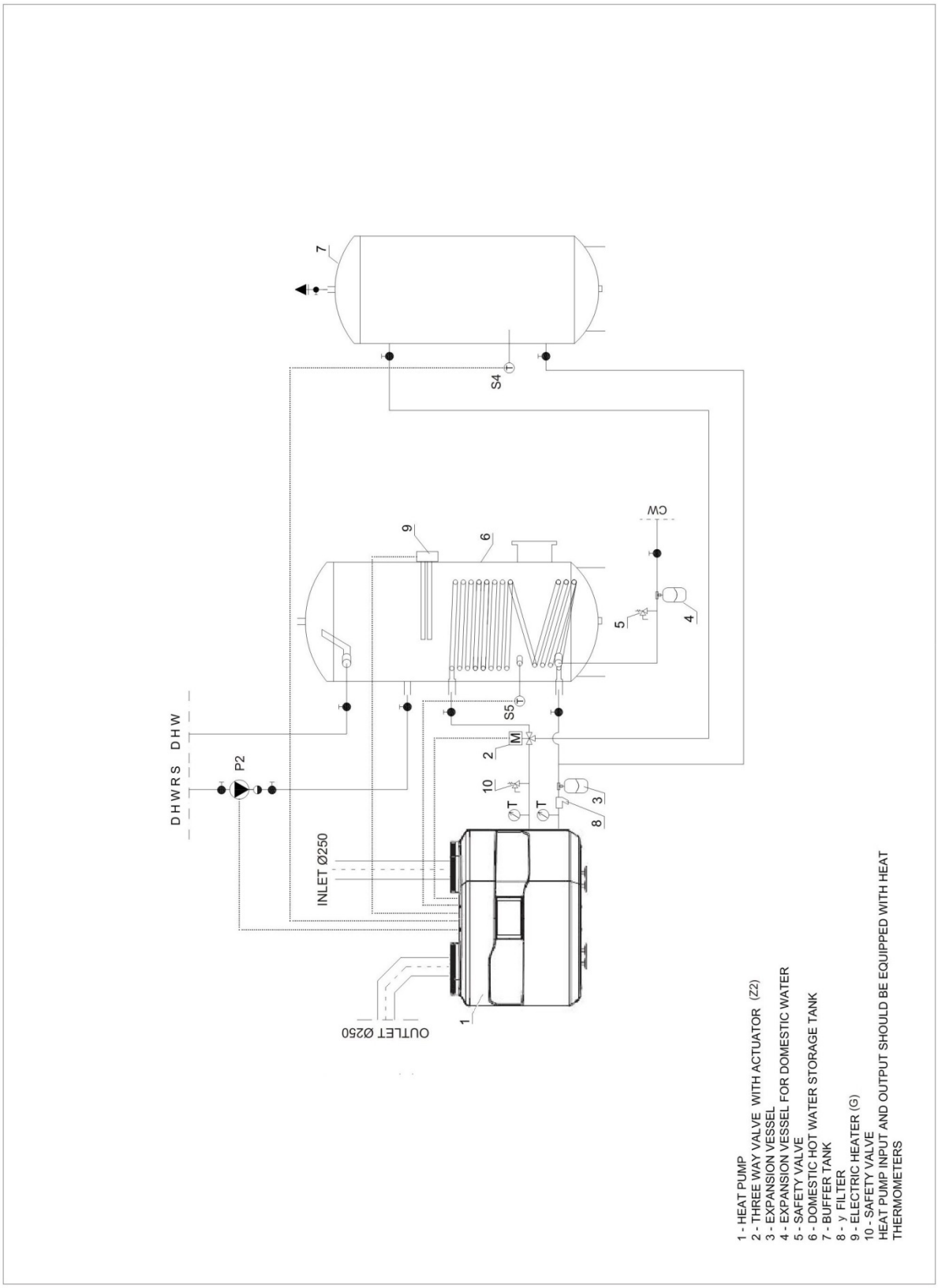


14.2 Diagram no 2



1 – HEAT PUMP
2 – BALL VALVE
3 – CIRCULATION PUMP (P2)
4 – CHECK VALVE
5 – EXPANSION VESSELS
6 – SECURITY VALVE
7 – DHW TANK
8 – y FILTER

14.3 Diagram no 3



15. Technical data

Scope		
External temperature	°C	min: +5 /max 43
The temperature of hot water with the heat pump	°C	max 60
The temperature of the hot water with the electrical heater.	°C	75
Minimum assembly area	m^2	1
Heat transfer fluid	-	Water or water and glycol mix
Electrical parameters		
Electrical power supply		1/N/PE 220-240V/50Hz
Recommended security		C8
Max. starting electricity of the heat pump	A	30
Max. work electricity of the heat pump	A	6,5
Power of absorb — fan	W	90
Power of absorb — circulation pump	W	Max 55
Energy consumption for inlet air temperature of 20°C	kW	min. 0,55, maks. 1,1
Performance		
Energy efficiency class	-	A+
Load profile	-	XL
Sound power level	dB(A)	57
Maximum heating capacity for drawn air temperature of 20°C	kW	3,6
Average heating capacity for drawn air temperature of 20°C and water heating from 10 to 55 °C	kW	3,1
COP, water heating 10-40°C		4,9
COP, water heating 10-45°C		4,3
COP, water heating 10-50°C		4,0
COP, water heating 10-55°C		3,9
Heating water at 10-40°C		3h:05min
Heating water at 10-45°C		3h:50min
Heating water at 10-50°C		4h:25min
Heating water at 10-55°C		4h:55min

Working factor		
Compressor type		rotary
Type of the air-compressor oil		ESTER OIL VG74/480 ml
Refrigerant/ quantity		HFC-134a/0,80kg
GPW factor		1430
Equivalent CO2	t	1,14
Maximum permissible pressure (low pressure)	bar	4,7
Maximum permissible pressure (high pressure)	bar	24
Dimensions		
Diameter	mm	670
Height	mm	500
Weight	kg	50
Heating circuit parameters		
Connectors for the heating circuit		2xGW $^3/_4$"
Minimum tube inside diameter	mm	20
Flow	m^3/h	0,33÷0,35
Heat transfer fluid		water/propylene glycol

The above values of COP and heating times were tested in the following conditions: Inlet air temperature: 20°C. The pump was connected to the water tank 300l. In different conditions the above values may change.

The producer is not bearing any responsibility for the malfunction or damage to the resulted from the heat pump incorrect selection capacity of the tank.

Concludes fluorinated the greenhouse gases overcame by protocol with Kyoto.

The used product cannot be treated as communal scraps. Dismounted, equipment is necessary to deliver to the point of the gathering of electric equipment and electronic for the purpose of recycling. Appropriate arrangements of a used product prevents potential negative influences on the environment what sort they could step out in the event of unsuitable management of scraps. For obtainment of more detail information about recycling of this product, is necessary to be in contact with the local individual of territorial autonomy, with the services management of scraps or with the shop in which bought became this product

The manufacturer reserves the right to change the information contained in the manual.

Start-up protocol of the heat pump GELBI D4.2

Copy for the Investor

Device serial number					
Name and address of the Investor					
Name and surname of the commissioning person					
Place of installation (e.g. basement)					
Air ducts			Diameter:	Material:	
Heating pipeline			Diameter:	Material:	
Heating diagram corresponding with the operating instructions			Diagram no:	Other:	
DHW tank capacity					
Buffer cylinder capacity					
Supply temp. - heat pump*					
Return temp. - heat pump*					
Condensate drainage method					
Electrical connection					
Name of the person making the electrical connection					
Overcurrent protection					
Residual-current device					
Cross-section of the power supply cable					
Heater	Yes	No	Circulation pump	Yes	No
Notes					
Start-up date					

* Note the temperature of the DHW tank during the measurement. The temperature of the DHW tank during the measurement should not be lower than 30°C.

…… ……. ……

Stamp/signature of dealer Stamp/signature of installing company Signature of investor

Start-up protocol of the heat pump GELBI D4.2

Copy for the Manufacturer

Device serial number					
Name and address of the Investor					
Name and surname of the commissioning person					
Place of installation (e.g. basement)					
Air ducts			Diameter:	Material:	
Heating pipeline			Diameter:	Material:	
Heating diagram corresponding with the operating instructions			Diagram no:	Other:	
DHW tank capacity					
Buffer cylinder capacity					
Supply temp. - heat pump*					
Return temp. - heat pump*					
Condensate drainage method					
Electrical connection					
Name of the person making the electrical connection					
Overcurrent Protection					
Residual-current device					
Cross-section of the power supply cable					
Heater	Yes	No	Circulation pump	Yes	No
Notes					
Start-up date					

*Note the temperature of the DHW tank during the measurement.The temperature of the DHW tank during the measurement should not be lower than 30°C.

…… ……. ……

Stamp/signature of dealer Stamp/signature of installing company Signature of investor

In case of malfunction of the heat pump "The start-up protocol" is attached to the complaint notification, to be sent to the manufacturer. The Protocol is the basis for defining the correctness of the selection and installation method of the device.